

ABSTRACT

An underfill material is presented that may be used between an electrical component and a substrate. The underfill material may be a cured epoxy resin composition comprising a liquid or semisolid epoxy resin and a polyfunctional anhydride polymer and/or oligomer curing agent. The use of anhydride polymers and/or oligomers decrease the volatilization of the composition, thereby reducing the porosity of the underfill material. By changing substituents of the anhydride polymer and/or oligomer, the underfill material may be designed to modify viscosity, decrease moisture adsorption, volatilization and modulus; improve mechanical properties, and enhance adhesion.